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EXAMINER

KREINER, MICHAEL B

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,171	Applicant(s) ARAFAT ET AL.	
	Examiner Michael Kreiner	Art Unit 3644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the step of coupling the leading edge member to a forward section of the airfoil surface must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 3644

2. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what is meant by "coupling the leading edge member to a forward section of the airfoil surface." Is the leading edge member a separate element that covers an airfoil, or is it the airfoil itself, as indicated in claim 17 with "providing a leading edge member forming a forward portion of an airfoil surface"? In other words, does the apparatus go over a wing or is it the wing?

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1-2, 5-10, 12-14, and 16-20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by G. S. Wing (U.S. Pat. No. 3,135,486).

Regarding claim 1, Wing teaches a protective skin (21 in fig. 1) for an aircraft comprising: a leading edge member (col. 3 line 34) forming a forward portion of an airfoil surface, the leading edge member having an exterior surface (col. 2 line 45) and an opposing interior surface (col. 2 line 52); at least one pocket recessed into the interior surface (23 in fig. 3), each pocket having a thickness that is less than the thickness of the leading edge member, each pocket being configured to deform in response to an impact from an object with the leading edge member. At least one pocket is disposed solely within the leading edge member, as clearly shown in figure 3.

Regarding claim 2, Wing teaches the protective skin according to claim 1, wherein the leading edge member (col. 3 line 34) forms the leading edge of a wing member (col. 1 line 1).

Art Unit: 3644

Regarding claim 5, Wing teaches the protective skin according to claim 1, wherein the pockets are formed by a chemical etching process (col. 2 lines 56-7).

Regarding claim 6, no weight is given to the process by which the pockets are formed, since the claim is drawn to an article and not a method.

Regarding claim 7, Wing teaches the protective skin according to claim 1, wherein the leading edge member (col. 3 line 34) is curved about a longitudinal axis so as to form an upper airfoil surface and a lower airfoil surface (fig. 1, col. 2 lines 48-50).

Regarding claim 8, Wing teaches the protective skin according to claim 7, wherein the at least one pocket comprises: a plurality of pockets (23) arranged in a selected pattern over the interior surfaces of the upper airfoil surface and the lower airfoil surface (fig. 3).

Regarding claim 9, Wing teaches the protective skin according to claim 8, wherein each pocket (23) is formed in one of the following geometric shapes: circle, oval, rectangle, square (fig. 3).

Regarding claim 10, Wing teaches the protective skin according to claim 8, wherein the pattern of pockets on the interior surface of the upper airfoil surface is a mirror image of the pattern of pockets on the interior surface of the lower airfoil surface (fig. 3).

Regarding claim 12, Wing teaches the protective skin according to claim 1, further comprising: at least one rib member (30 in fig. 4) connected to the interior surface of the leading edge member for attaching the leading edge member to a substructure of the aircraft (col. 3 lines 17-22).

Art Unit: 3644

Regarding claim 13, Wing teaches the protective skin according to claim 1, further comprising: a stiffening means (30) connected to the interior surface of the leading edge member for providing localized stiffness to the leading edge member.

Regarding claim 14, Wing teaches the protective skin according to claim 13, wherein the stiffening means (30) is an elongated I-shaped beam (30 has flanges 32 and 33 along its top and bottom, giving it an I-beam cross section).

Regarding claim 16, Wing teaches the protective skin according to claim 13, wherein the stiffening means (30) is also connected to a substructure of the aircraft (40).

Regarding claim 17, Wing teaches a method of making a protective skin for aircraft comprising: providing a leading edge member (forward portion of 21 in fig. 1) forming a forward portion of an airfoil surface, the leading edge member having an exterior surface (col. 2 line 45) and an opposing interior surface (col. 2 line 52); creating at least one recessed pocket (23 in fig. 3) in the interior surface, each pocket having a thickness that is less than the thickness of the leading edge member, each pocket being configured to deform in response to an impact from an object with the leading edge member. At least one pocket is disposed solely within the leading edge member, as clearly shown in figure 3.

Regarding claim 18, Wing teaches that the step of creating at least one recessed pocket is accomplished by a machining process (col. 2 l. 56-57, where performing chemical etching by machine is well known).

Regarding claim 19, Wing teaches that the step of creating at least one recessed pocket is accomplished by a chemical etching process (col. 2 l. 56-57).

Art Unit: 3644

Regarding claim 20, as discussed above with regards to 112 second paragraph considerations and in previous, the Applicant fails to support the leading edge member being coupled to a forward section of the airfoil surface. The specification discloses attaching the leading edge members to a substructure of an airfoil by rivets (p. 7 l. 7-9). Wing discloses attaching the leading edge member (21) to the forward substructure of an airfoil (32, 34, and 35 in fig. 4). In doing so the leading edge is coupled to a forward section of the airfoil surface.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wing as applied to claim 8 above. It would have been obvious to one skilled in the art at the time of the invention to create different pocket patterns on opposing sides of the protective skin. Airfoils typically have a concave under-camber, which greatly reduces the risk of bird collision, and thus reduces the need for reinforcement. The weight of the wing could be minimized by removing more material from the lower surface, resulting in a non-mirror image between the lower and upper surfaces.

4. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wing as applied to claim 13 above, and further in view of W. B. Stout (U.S. Pat. No. 1,866,680).

Regarding claim 15, Wing teaches the protective skin according to claim 13. Wing fails to teach wherein the stiffening means is not connected to a substructure of the aircraft. Stout teaches wherein the stiffening means (175 in fig. 14) is not connected to a substructure of the aircraft (col. 5 lines 127-8). It would have been obvious to one skilled in the art at the time of the

Art Unit: 3644

invention to leave the stiffening means unconnected to the substructure, in order to reduce the weight of the aircraft.

5. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wing in view of Carlson et al. (U.S. Pat. No. 4,976,396).

Regarding claim 3, Wing teaches the protective skin according to claim 1, wherein the leading edge member (col. 3 line 34) forms a leading edge (as previously discussed). Wing fails to teach a horizontal stabilizer. Carlson teaches an airplane with horizontal stabilizers (20 in fig. 1, col. 6 lines 17-20) as well as wings (14 in fig. 1, col. 6 lines 17-20). It would have obvious to one skilled in the art at the time of the invention to apply Wing's reduced-weight leading edge to horizontal stabilizers in order to reduce the weight of an aircraft.

Regarding claim 4, Wing teaches the protective skin according to claim 1, wherein the leading edge member (col. 3 line 34) forms a leading edge (as previously discussed). Wing fails to teach a vertical fin. Carlson teaches an airplane with a vertical fin (18 in fig. 1, col. 6 lines 17-20) as well as wings (14 in fig. 1, col. 6 lines 17-20). It would have obvious to one skilled in the art at the time of the invention to apply Wing's reduced-weight leading edge to a vertical fin in order to reduce the weight of an aircraft.

Response to Arguments

3. Applicant's arguments filed 10/17/08 have been fully considered but they are not persuasive.

The amendment to claim 20 does not overcome the previous new matter rejection, as reiterated in the present Office action, and therefore does not place the application in condition for allowance.

Art Unit: 3644

The amendment to claims 1 and 17 includes the further limitation that “the at least one pocket being disposed solely within the leading edge member.” Wing teaches at least one pocket (23 in fig. 3). The pocket is disposed solely within the leading edge member 21, since its borders do not extend beyond the borders of the leading edge member. In this regard, the Applicant’s arguments are more specific than the teachings of the claims.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kreiner whose telephone number is (571)270-5379. The examiner can normally be reached on Monday-Friday 9am-5:00pm (EST).

Art Unit: 3644

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mansen can be reached on (571)272-6608. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. K./

Examiner, Art Unit 3644

/Michael J. Carone/

Supervisory Patent Examiner, Art Unit 3641